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ORIGINAL ARTICLE

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Selecting futures: The role of conviction, narratives, ambivalence, and constructive doubt

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Abstract

Institutional decisions about the future, that matter, are usually made in a context of considerable uncertainty. Although the intention is success the possibility of failure must inevitably be present, whether recognized or not. The principal purposes of this study are twofold. First, we argue that uncertainty contexts require that decisions to create the future are supported by a particular type of future oriented or foresight narrative which we call a *conviction narrative*. Its essential function is to combine available *knowledge* about how to achieve desired outcomes with the *feeling* that the selected action will achieve the aim. Second, we introduce two states, in which conviction may be achieved, divided, and integrated, to argue that research into how conviction is achieved by individuals or institutions making decisions, can be an extremely promising and practical avenue for foresight studies, throwing light on several issues, particularly the oft-noted reluctance to change course and attachment to single stories of the future. The focus on the reality of uncertainty and the two states in which it can be met, can also enhance the research and practice of narrative foresight, through more systematic theorization of the role of emotion and ambivalence in narrative thought and in the processes through which future-focused narratives generate action under uncertainty.

KEYWORDS

ambivalence, conviction narrative theory, emotion, policymaking, strategic decision-making, uncertainty

1 | INTRODUCTION

A fundamental premise of much scholarly writing on foresight work is the priority given to exploration of alternative futures over prediction (Bell, 2005). As Dator (2019b) has argued, '[n]othing in society, beyond the most trivial can be precisely predicted. ... The future cannot be predicted, but alternative futures can and should be forecast'. Rather than aiming at predicting the future, therefore, much foresight

work has the goal of 'creating transformational spaces for the creation of alternative futures' (Inayatullah, 2004, p. 8).

However, in both policy and strategy-making, despite the increasing popularity of foresight approaches such as scenario planning and causal layered analysis (CLA), narratives about the future often remain firmly wedded to the future as a version of the past. For example, in the United Kingdom, debates in government about appropriate responses to the unfolding COVID-19 pandemic remained

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tied for too long to a narrative of the pandemic as “a bit like the flu.” Jahel et al. (2021, p. 1) show that despite the discontinuity represented by the COVID-19 pandemic, representations of the future produced in response to the crisis demonstrate ‘a reluctance to re-think the present as a moment of discontinuity opening up the horizon of possibilities.’

There is also evidence of communities of actors in markets and policy-making circles becoming captured by exciting single stories about the future to the exclusion of alternative narratives. Examples include the dot com financial bubble (D. Tuckett & Taffler, 2008), or the enchantment with complex models for pricing and regulating the risks of sub-prime mortgage derivatives, full of unattended assumptions, which led to the 2007/2008 global financial crisis (Kay & King, 2020).

The common feature of COVID-19, the global financial crisis and its unanticipated aftermath as well as the threats from climate change, and accelerating technological innovation, is that decision-makers must face uncertainty; “radical uncertainty,” as Kay and King term it. In this context, existing decision-tools, typically dependent on optimizing a univalent utility function are found wanting, and enchantment with single stories about the future is likely to be dangerous.

We argue, in this study, that conviction narrative theory (CNT), a theory of choice under *radical uncertainty* (Johnson et al., 2021), is a useful new approach to theorizing the role of narratives about the future and how they facilitate human action. We draw attention to the emotion work that CNT suggests is central to exploring futures using narrative thought.

Narratives play a central role in human responses to uncertainty and unexpected events and, as in the broader social sciences, there has been a significant “narrative turn” in futures and foresight research and practice. This is exemplified, in the work of Inayatullah and colleagues on narrative foresight and CLA (Inayatullah, 2004; Inayatullah & Milojevic, 2015; Milojević & Inayatullah, 2015) and in Beach's theory of narrative thought (Beach, 2009, 2021). Underpinning this narrative turn is the recognition that narrative is a primary mode of knowing (Bruner, 1985) which mediates our understanding across past, present and future; thus making choices, action and strategy possible (Milojević & Inayatullah, 2015).

Narrative thought is already understood as a profoundly social process. In our social world, we co-construct and enact shared narratives, categories and frames that hide much of the uncertainty which we face, largely getting “our worlds ready to wear” R. E. Brown (1978, p. 11). As Milojević and Inayatullah (2015, p. 153) note “The narratives we are born into...provide meaningful frameworks for seeing, indeed, constituting reality. In doing so they also simultaneously shape boundaries for what is perceived plausible and desirable.”

The narrative turn in foresight science has produced important insights, including the importance of deconstructing unattended frames and assumptions in narratives about the future (Inayatullah, 2004), how narratives serve to generate expectations about the future and imagine alternative futures in the face of

uncertainty and the unexpected, and the ubiquity of individual and organizational defenses against overturning established narratives (Beach, 2021). However, we will argue, existing work can be enhanced by systematic theorization of the central role played by emotion in assembling and selecting narratives and in the consequences for action over time.

CNT offers a theory of decisions and action under radical uncertainty from three insights we will explore. First, in conditions of radical uncertainty the central problem of action is developing sufficient conviction in planned actions, while remaining open to information or ways of thinking that have the potential to overturn that conviction. This is an emotional as well as a cognitive challenge.

Second, faced with radical uncertainty a predominant human approach is to construct narratives; which evoke feelings, as well as thought, about how opportunities, challenges, and the outcomes of plans will unfold over time.

Third, the preferred narratives selected are those which, in Bruner's (1985) terms, evoke a sense of “verisimilitude.” This sense of a narrative “feeling right” is not just cognitive but also emotional (Chong & Tuckett, 2015). As we will see, how this “feeling right” comes about has crucial consequences.

We make our argument for the value of this approach as follows. First, we outline key characteristics of radical uncertainty and the central problem they pose for the development of the conviction to act. Second, we discuss the role of narratives and the feelings they evoke in mediating between available “data” sources to create representations of the future and combine them in such a way as to produce action under uncertainty. Third, we explore the role that ambivalence, whether consciously noticed or not, must play in deciding and acting, in contexts of radical uncertainty about the future and the future outcomes of plans. Fourth, we elaborate CNT, which we suggest is a promising and practically useful framework for foresight studies and for research into future-oriented decisions and action. Fifth, we introduce two paradigmatic states emerging from CNT in which ambivalence tends to be managed and their potential consequences for foresight, policymaking, corporate decision-making, and regulation. The approach provides insight into familiar problems, such as apparently excess risk-taking, blind spots, over focus on a single case and groupthink, and how they might be avoided.

2 | RADICAL UNCERTAINTY

For Knight (1921), contexts of risk are characterized by knowing the relevant outcome space and known or knowable probabilities. Contexts of uncertainty are qualitatively different. They are characterized by problems in knowing the space of relevant outcomes, inability to assign meaningful probabilities and difficulties in categorizing relevant entities. Where we use the term “radical uncertainty” in this study, we use it in this Knightian sense. As Simon (1990) argued, the point about task and information environments of the kind typically faced by those making high-impact decisions such as investments in

major government programs or major strategic shifts in firms, is that secure *ex ante* knowledge is not available (Alvarez & Barney, 2005).

As an example, consider the Finnish one-time mobile phone company Nokia. As has been well documented, this company “fell behind,” “missed big trends,” and “lost time”¹ while its competitors Apple and Samsung, took their market share. New company management came in and faced up to the certainty of extinction if they continued unchanged and adapted by “jumping” into an entirely new and radically uncertain future through a radical strategic renewal in 2013. They divested its mobile phone business and focused on manufacturing network equipment and software, patent licensing, and opportunities in wearable technology and the Internet of things.

Senior managers and policy-makers work quite routinely on such contexts of ill-specified alternatives and outcome spaces, unknown risks and complexity (Levinthal, 2011). Not only will they, therefore, struggle to assign meaningful probabilities, but they will also face the constant problem of categorizing and framing the entities and their relations which they need to understand and forecast. In developing his contrast between risk and uncertainty, Knight argued just this point. Analysis, he thought, depends upon categorizing the world into “things, which, under the same circumstances, always behave in the same way” and for that “the chief logical problem... lies in the conception of a ‘thing’.”; noting that “It is manifest that the ordinary objects of experience do not fit this description closely” (Knight, 1921, pp. 204–205).

Choice in a probabilistic universe, with a known outcome space, can be normatively “rational,” in the sense of calculating an optimal approach. However, as Bell (1983, p. 8) notes “[the] future is a field of uncertainty.” Facing radical uncertainty in a competitive marketplace, firms, like Nokia in the example above, might try to draw on boundedly rational small world² representations of large world problems to seize opportunities, react to threats, and innovate, if they are to survive. Policy makers too might draw on simple small world representations to engage the future in the face of uncertainty and wicked social problems. But they will constantly face the prospect of having misread their strengths and weaknesses, misread the way events will unfold, or misread the need to update their representations (Feduzi et al., 2020; Levinthal, 2011). This dilemma posed by uncertainty is irresolvable through normatively rational calculation.

Thus, a primary challenge for research is to ask *how*, *faced with radical uncertainty, managers and policymakers develop and share a sufficient sense of conviction, in the rightness of a plan, to act; while also remaining open to new information and new interpretations which threaten to overturn that conviction.*

3 | IMAGINATION AND NARRATIVE IN NAVIGATING UNCERTAIN FUTURES

As Milojević and Inayatullah (2015) describe, while narrative approaches have always been an important element of futures work, there has been a strong recent turn to narrative approaches in futures and foresight research and practice. Paschen and Ison (2014)

have called for a broad shift to a “narrative paradigm” placing narrative research, for example, at the heart of climate change adaptation work, to open up spaces for innovative governance.

Story-telling as a means of planning has been identified as among the uniquely human tools (Dunbar & Shultz, 2007) that allow us to make sense, close information gaps (Golman et al., 2017, 2021), order information to assist prediction and thinking ahead (Beach, 2021), and to communicate and gossip. However, narratives can also support us in avoiding or discounting information to maintain valued beliefs and social identity (Golman et al., 2017; Rayner, 2012).

Within psychology, the significance of narrative as a cognitive process is reflected in recent developments in the neurological study of episodic memory and we can now identify a narrative subsystem in the brain distinct from language capabilities (Mar, 2004; Rubin, 2006). Such contributions support Bruner's (1990) identification of the centrality of narrative in organizing human experience and memory and Beach's (2009) theory of narrative thought in which he refers to narrative as providing a dynamic, ever-evolving chronicle of ongoing experience, linking memory of the past, perception of the present, and expectations about the future.

As Beach (2021) notes, although philosophers and physicists have struggled with the reality of time and causality, the brain has evolved ways to treat both as true (Holyoak & Cheng, 2011; Lagnado, 2011; Sloman & Lagnado, 2015; Sobel & Kirkham, 2006).

Important as these and other contributions emphasizing the role of narrative in thinking and decision-making have been (e.g., Baumeister & Masicampo, 2010; Graesser et al., 1994; Mandler & Johnson, 1977; Pennington & Hastie, 1992), they leave the crucial role narrative plays in facilitating action under uncertainty under-theorized.

A starting point here is the work of Jens Beckert (2016). He puts narrative at the heart of the way actors in a modern economy *must* develop action based on future expectations. As he sees it, acts of individual and collective imagination are necessary to respond to competitive forces in a modern economy. As Knight observed, these acts of agency must necessarily produce dynamic and uncertain outcomes. Therefore, acts of narrative imagination—“imaginaries” or “fictional expectations” are central drivers which both help navigate uncertainty and contribute to uncertainty about a future that has yet to be made. Decisions are “creative responses to situations that are based on contingent interpretations of what the future holds...” (Beckert, 2016, p. 36).

Lane and Maxfield's (2005) interview and observation study of Echelon, a US start-up which manufactured wafer-thin electronic chips with integrated software, illustrates how shared narratives, which Beckert terms “imaginaries,” enable organizations to make choices under what Lane and Maxfield called *ontological uncertainty*. What Echelon executives did was to select an imagined narrative for their firm's future that made sense of their complex situation and fitted their goals and the local social relations in which they found themselves. In this way, the narrative showed them a path ahead.

The firm had a new technology with which it hoped to revolutionize the large market for electronic control of air conditioning,

heating, and other distributed devices. Ultimately successful in its ambitious aim to compete with and perhaps eventually replace the established players, Lane and Maxwell argue the company founders steered their decision-making via narratives of the future, in part generated by heuristically constructed analogies fitted to their experience. For example, initially, some in top management began with a story that the way forward was to sell their product through established large companies. It proved difficult and threatened to make them dependent on those with whom they wished to compete.

When another narrative emerged, via a sales employee charged with developing a training course for those using new technology, it attracted them as a preferred alternative. The idea was to sell direct via the many small independent contractors who were in the habit of customizing the big companies' existing control equipment with their own software fixes. The approach gained traction when the employee enlisted allies from the engineering group (who were primarily attracted because the solution required them to design another new product) and then took his idea to the CEO. The latter recognized elements of the story from past success in quite different fields. Moreover, he noticed it was an opportunity to move the markets toward another of his goals: interoperability.

Initially attracted in these ways, the CEO tested out the idea by visiting three of the independent contractors (identified by the employee). He quickly recognized the owner of one of the companies to be the counterpart of someone that had played a paramount role in the most important success story of his business life. It fitted the current situation to a known success story in the same way professional investors try to repeat past success by finding a new situation in which the potential narrative looks to them or colleagues in their social network like the old one (D. Tuckett, 2011).

In this way, the independent contractor narrative became compelling across a coalition of Echelon actors. Moreover, via this strategy, rather than be subservient to the existing large players, Echelon's goal to "take control of its destiny" was evoked. The narrative gave the desired sense of being in control, avoiding at least one dependence aspect of uncertainty and was, therefore, highly attractive. Action could follow.

Several features of a logic of decision-making, and its social and informational context, can be seen in this example. Echelon's decisions reflect data both gained and interpreted from the external world, including the social environment and internally derived goals. Executives had to form a coalition willing to commit to action over an uncertain period. They had no probabilities available to model meaningfully. But they could form and propagate beliefs, based on their prior "knowledge" and new evidence. Thus, they could characterize what they thought likely to happen, given what they "imagined" about the potential actions of others around.

Data, interpretations, goals, beliefs and imagined futures, were relevant elements for decision-making hanging around in their social environment in narrative form. The narrative eventually selected to underpin strategy allowed these elements to be represented in a format that could be combined with their values to guide their choices. This evolving narrative was, both the output of their

reasoning process for judging outcome and an input into it (Johnson et al., 2021). In this way, their narrative solved their need to create internal representations that, through sense-making, "mediated" between the external world and internal decision. It provided a process, a driver of action that could combine beliefs and goals to yield committed action.

As the Echelon example also illustrates, memories are not stored but storied. There is evidence suggesting we remember the past through narrative reconstruction and we imagine futures through the same mental systems and narrative capacities (Schacter et al., 2008); evoking what Suddendorf and Corballis have referred to as "mental time travel" (Suddendorf & Corballis, 1997; Suddendorf et al., 2009). This mental time travel is not a purely intellectual exercise but an embodied process. Through narrative, we cast our bodies into the future and experience the visceral emotional consequences of our simulated plans and actions. As Küpers et al. (2013, p. 85) describe, "[n]arratives are rooted in and processed through the living, feeling, and signifying bodies that interact with their respective worlds."

Narratives offer continuous interpretations of our lives together, our futures and our motivations as a profoundly social species. They depend, for success, on social action, and are an ongoing social and cultural accomplishment. As in the Echelon example, narrative capacities include the capacity to explain ourselves and to draw on other's narratives; and provide a means for sense-making and sense-giving in relation to challenges we face. They convey and adapt shared cultural responses to those challenges. They embed causal dynamics and chronological ordering (Tuomi, 2019; Vaara et al., 2016). Crucially, they are not just a means to persuade an audience but play a central role in how the storyteller develops their own conviction. As we now go on to explore, emotions play a central role in narrative thought and in translating narratives to action.

4 | EMOTIONS ARE NECESSARY ELEMENTS OF NARRATIVE

Emotion, linked to multiple brain systems and to the embodied nature of cognition, is accepted as a fundamental element in human cognition and central to attention, perception, decision-making and action in large areas of neuroscience, psycholinguistics, and psychology (Lakoff, 2012; Phelps, 2006). However, it has until recently received modest attention in research on high-impact decision-making or discussion of the role of narratives in imagining futures.

Strategy scholars have shown increasing interest in this important area (e.g., Healey & Hodgkinson, 2017; Huang et al., 2019; Huy & Zott, 2019; Vuori & Huy, 2016), although much remains to be done. Within policy research, there has been some turn to treating the role of emotion seriously in more critical accounts of policy-making (e.g., Newman, 2012). However, as Anderson (2016, p. 86) notes, emotion is a significant but largely neglected element of the reasoning process in policymaking, and "surprisingly little interrogation of the everyday meaning of emotion to policy participants has taken place among policy and politics scholars."

Despite a recent strong focus on narrative in futures and foresight work, interest in narrative foresight has been somewhat lagged by recognition of the crucial role of emotions in assembling, selecting, and acting on narratives. For example, one of the more influential contributions to narrative foresight work has been CLA. A search through the seminal CLA Reader (Inayatullah, 2004) finds just one mention of emotion (in relation to its role in myth and metaphor).

The more recent "CLA 2.0" publication (Inayatullah & Milojevic, 2015) shows greater engagement with the role of emotions. Multiple contributors to the book recognize the ubiquity of emotion in foresight practice (e.g., Shevellar, 2015) and the central role of emotions in helping people connect with a collective narrative and being moved to action (e.g., Spencer & Salvatico, 2015). However, there is significant scope for improving the theorization of the interconnectedness between narrative, emotion, and action in CLA, and other approaches to narrative foresight. In particular, we will argue for attention to the central facilitating role of emotions in narrative thought, both as action tendencies and attention filters.

Solms (2021) provides an accessible neuroscience summary of the central role of feelings (i.e., conscious emotion) as they are understood in recent work. The two key findings for our purposes are (1) it is feelings in all mammals that prioritize which of their potentially conflicting needs to satisfy in any context; and (2) that it is also feelings, produced by surprise (Solms & Friston, 2018), that cause humans to modify their prior expectations of the situations they find themselves in, and their normative approach; bringing their cortical functioning to bear to explore the manifest uncertainty and to elaborate a response. To implement prioritization and responses to "surprise," feelings are significantly registered as present in the core executive areas of the brain, for example, in the mid brain and especially in the periaqueductal gray (PAG), as well as in other networks. In fact, almost any human task, including answering a question, evokes their activation.

Such advances in brain understanding dispel the (Western) folk idea that emotion and cognition are separate and rival processes; an idea that has had a strong influence on much work on judgment and decision-making research (e.g., Kahneman, 2011). Rather they are intertwined at all stages from perception to action (Lerner et al., 2015; Phelps, 2006; Phelps et al., 2014). Importantly for our purpose, emotions are linked to approach/avoidance motivation and behavior at multiple levels from the primitive primary emotional system of the brain through learning processes to higher order cognitions (Panksepp, 2013; Rolls, 2013). Thus, not only base affective orientations but also higher order emotions with complex cognitive appraisal elements may be understood as mechanisms for mediating approach behaviors to rewarding opportunities and avoidance behaviors to aversive threats³. Emotions are action tendencies in the way that they motivate approach and avoidance behaviors, and they are mechanisms for the management of attention, intimately involved in how we select, and process information, and engage appropriate responses. Schoemaker (2019) has recently highlighted the central importance of attention processes in foresight work. Given the

central role of emotion in attention processes, this suggests that the role of emotions in foresight work deserves greater consideration.

Importantly for foresight work, as for any decision-making under uncertainty, there is clear evidence that emotions are felt, not only in response to actually present situations, but to *imagined* situations. For instance, in understanding literature, although we know that a situation is not real, we nonetheless experience emotions (Mar et al., 2010).

In understanding others' minds, we imagine what we would think and feel were we in their shoes (Mitchell et al., 2005). We can also experience emotional reactions to imagined *futures* that are the output of narrative simulations (Richard et al., 1996). This is how emotions felt "inside" a narrative (which is imaginary) manifest "outside" the narrative and affect real-world decision-making.

The Echelon narrative is an example of how under radical uncertainty, when meaningful probabilities are not available, heuristics—simple rules relying on a small number of cues, such as the past experiences of the CEO, are used to evaluate narratives; including cues exploiting the causal, analogical, and temporal structure embedded in narratives. The role of feelings is to implement selection as part of the "mediation" process described above. Each narrative element eventually combined into an action narrative *feels* right, in part via social process. Moreover, feelings are again relevant in the "combination process."

Simulation itself cannot assign meaning. But action narratives can be simulated mentally, to imagine future consequences of action affectively as well as cognitively. In this way, the future is available to be appraised through our emotional *responses* to that future, which combine beliefs with values. In narrative simulation, emotions such as excitement, fear, shame, and anxiety accompany anticipations of future outcomes or of the chosen means we have selected to get to them, motivating us to approach or avoid acts causing those outcomes (Elliot, 2006).

Vuori and Huy's (2016, 2020) longitudinal case study research on Nokia provides a relevant example of the way emotions, and their effect on attention, influence decision-making, in this case disastrously. Drawing on extensive interviews they found that top and middle managers' shared emotions during the smartphone innovation process caused cycles of behaviors that harmed both the process and its outcome. Differing types of shared fear between top managers and middle managers profoundly affected how attention was allocated and information was interpreted. Top managers were afraid of external competitors and shareholders, while middle managers were mainly afraid of internal groups, including superiors and peers. Top managers' externally focused fear led them to exert pressure on middle managers without fully revealing the severity of the external threats and to interpret middle managers' communications in ways biased by their prior conceptions. Middle managers' internally focused fear reduced their tendency to share negative information with top managers, leading top managers to be poorly informed, and biased by their prior conceptions, so that they developed an overly optimistic perception of their organization's technological capabilities and neglected long-term investments in developing innovation.

A particular feature of this period was the avoidance of uncomfortable knowledge, driven by the avoidance of ambivalence. As one senior manager interviewed in the research noted in relation to the market decline of phones using their Symbian operating system “no one on an emotional level wanted to think about it right away, even though analytically [top managers] knew [that the prevailing strategy should be challenged]. The consequences were emotionally burdening. We didn't want to deal with them” (Vuori & Huy, 2020, p. 14).

5 | THE CENTRAL PROBLEM OF AMBIVALENCE AND CONVICTION

Uncertainty can be paralyzing. The proverbial Buridan's ass could not choose between two equidistant haystacks and starved to death (Sen, 2003). Hodgkinson and Wright (2002) document how a senior team they supported though a scenario planning process failed to engage the uncertainties they faced, deploying a range of individual and organizational defenses to avoid decisive action.

High-stakes decisions often have strong arguments for and against the same position, producing ambivalence (Armitage & Conner, 2000; Festinger, 1962; Rucker et al., 2014; Smelser, 1998). For example, investing in the stock market after a crash could be hugely profitable (if the market recovers) or hugely costly (if it continues to crash). Compounding this, high-stakes decisions often unfold over long periods, requiring lengthy commitments. Likewise, preparing for a pandemic requires sustained investment for years, with no sense of when (if ever) it will pay off. Conviction is critical.

But conviction is also dangerous: Decision-makers who stick to their guns regardless of the evidence fare no better than those who vacillate at every turn. Thus, an important function of emotions is to manage conviction—*gaining conviction* to act even when every option has strong arguments for and against, *maintaining conviction* to commit to a sustained decision over time in the face of unfolding information, and *moderating conviction* when the evidence reaches a sufficient threshold to reverse course. We become emotionally attached to a particular futures scenario, investment, or romantic partner, to gain and maintain confidence in strategic, financial, or romantic decisions in the face of conflicting reasons and short-term variability. Yet excessive or unreflective conviction yields disaster.

Conviction is both cognitive and affective. It is built through narratives that integrate evidence and expectations with emotional support for a preferred choice. For example, the narratives uncovered in Tuckett's (2011) interview studies of money managers revealed two key conviction-generating strategies (Chong & Tuckett, 2015). First, 90% of respondents cited at least one narrative containing *attractors*—belief that an entity was attractive because it provided an *exceptional opportunity for gain*, either because the respondent felt they had special insight or because the entity itself was special (e.g., due to exceptional products). Second, 88% of respondents cited at least one narrative classified as *doubt-repellors* that served to reduce anxiety, either because it capped uncertainty (e.g., due to competent management) or downside surprise.

Decision-making in the face of recognized uncertainty is anxiety and excitement generating. On the one hand, excitement, the reward system, is triggered by opportunity. If not, nothing happens. On the other hand, anxiety is triggered by the need to approach reward in the face of potential threat. Both approach and avoidance emotions are necessarily aroused by the thought of action, insofar as the limited information about potential rewards and harms is recognized. This “felt” ambivalence triggers the behavioral inhibition system and the anxiety associated with significant potential goal conflicts (Gray & McNaughton, 2003).

In the short-term, anxiety is functional, activating search and vigilance. However, it is an aversive state; there is a strong motivation to quickly resolve the goal conflict that is generating anxiety. This may be through emotion-focused defense and coping mechanisms which downplay the conflict or, alternatively through problem-focused approaches which seek to resolve it (Ashforth et al., 2014).

In the face of radical uncertainty, any plan or consequential narrative about the future, should evoke ambivalence; the presence of conflicting cognitions and conflicting emotions which respond to both the attractive possibilities and the potential aversive outcomes.⁴

However, the extent to which ambivalence is consciously experienced depends crucially on the sensemaking process by which meaning is created or restored in the face of uncertainty and breaches of expectations. Ambivalence may often be avoided through defenses involving selective inattention which bypass experienced uncertainty.

In both psychological and sociological accounts, ambivalence has primarily been considered a condition to be avoided, as it is often an aversive state, arousing feelings of anxiety. Further, some studies suggest that ambivalence leads to cognitive inflexibility, amplification and polarization of views (Rothman et al., 2017).

However, as Rothman et al. note, evidence is also building that, in many contexts, experienced ambivalence facilitates positive outcomes; including increased cognitive flexibility, greater breadth of attention, even-handed consideration of divergent perspectives, creativity, and collective and individual adaptability. In the context of sensemaking Vogus et al. (2014) argue that “[e]motional ambivalence enables mindful organizing by making individuals more open to alternative perspectives ... and enhancing the cognitive flexibility ... needed to anticipate failures and effectively respond to the unexpected” (p. 593).

The negative impacts of ambivalence are primarily associated with defenses and coping strategies which close it off. These include downplaying or denigrating formerly valued objects, goals or aspects of identity, selective attention, and polarization of attitudes and emotions (Ashforth et al., 2014), vacillation, and over-simplification (see Rothman et al., 2017, for a review). In contrast, the positive impacts of ambivalence, are associated with the tolerance of ambivalence and curiosity about the learning it affords.

We suggest that the crucial point here is not the existence of ambivalence, which must always be present in the face of uncertainty. Rather, what matters is the *conscious awareness and tolerance* of doubts and ambivalence, and especially open curiosity about what provokes them, versus the tendency to repress ambivalence to

avoid the anxiety it provokes. As Fong (2006, p. 1019) suggests, experienced ambivalence “signals that it may be necessary or adaptive to process stimuli in this environment in a flexible, multifaceted way, and to be on the watch for new associations.” We return to this point in the penultimate section.

6 | FINDING THE CONVICTION TO ACT

CNT is a theory of decision-making under radical uncertainty (Chong & Tuckett, 2015; Johnson et al., 2021; D. A. Tuckett & Nikolic, 2017; D. Tuckett et al., 2020) that builds on the propositions presented so far about narrative, emotion, and ambivalence.

It posits that the mental substrate underlying decisions made in radical uncertainty is a *narrative*, a summary representation of relevant causal, temporal, analogical, and normative information. Narratives support four inter-related psychological processes:

1. *explanation* (imposing structure on the current situation that yields a sense of understanding and emotional satisfaction);
2. *mental simulation* ('running' the narrative forward in time to generate *imagined futures* associated with a given choice);
3. *affective evaluation* (reacting emotionally to imagined futures to evaluate their desirability and manage commitment over time); and

4. *communication* (coordinating action through justification and persuasion, with narratives propagating across social networks).

In everyday situations characterized by uncertainty and fuzzy evaluation, we make sustained decisions that we think and feel appropriate using socially shared narratives that facilitate sense-making and imagination.

As indicated in the Echelon example, conviction narratives emerge from and are improved by social debate (Mercier & Sperber, 2017), whether this is the result of actual discussion or anticipated discussion in people's minds. Thus, each of the narrative components are treated as more, or less, convincing within the social environments of different policy, industry, and management groups.

Figure 1 sets out components within a narrative⁵ that might cause it to be selected to support a particular set of actions by building a preponderance of approach versus avoidance emotion to develop the conviction to act. We saw some of this in the Echelon example—the action to be decided about was novel and might or might not work out; there were at least two completely different alternatives and no reliable way of deciding which would be preferable; the decision required mastery of local social and political processes and was made in social interaction; the preferred action was one that could be fitted to a “known” narrative with an implicit causal pattern recognized as valid by actors in the local culture, particularly attractive because it seemed to offer the right sort of control of their own destiny; the eventual decision was possible because it

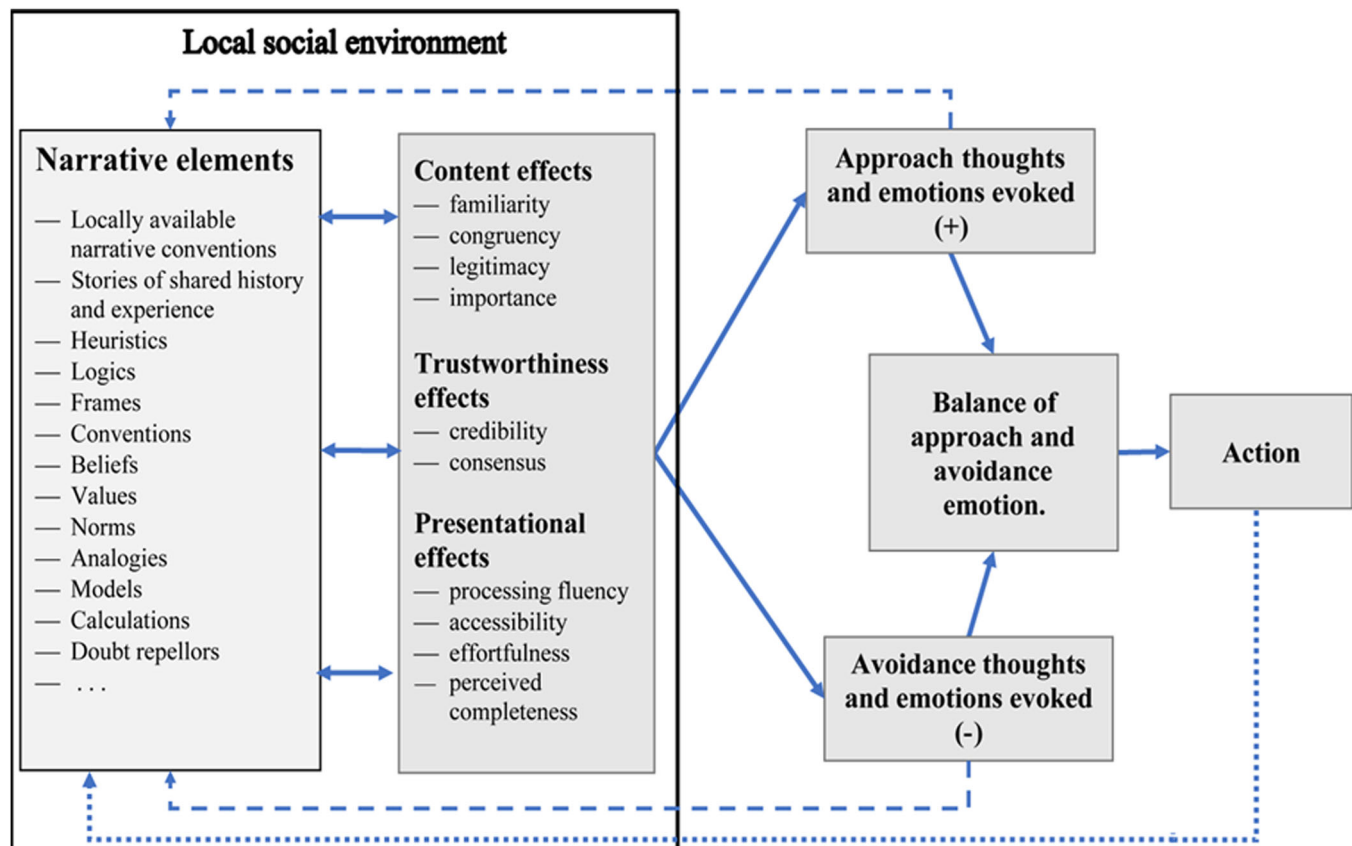


FIGURE 1 Components creating conviction in a narrative

excited those making it (the proposer, the engineers, the CEO) and also, through the CEO's visits to independent contractors, provided evidence that helped to quell doubts and further reduce the feeling of *subjective* uncertainty. Moreover, because at these visits the CEO fitted his current situation to a known success story in his career, excitement in the narrative was amplified.

6.1 | Narrative elements

The first box contains typical elements that may be assembled within overall narratives. The point is that each element has the potential to evoke feelings and thoughts, creating approach or avoidance tendencies. Note that the role of some narrative elements in a preferred conviction narrative is that they repel doubt, perhaps via counterfactual thought and arguments (Byrne, 2016) or enquiries such as running checks (Chong & Tuckett, 2015). The dashed arrows back from approach and avoidance thoughts and emotions indicate their iterative role in narrative assembly. The dotted line back from action indicates that narratives may be updated (or not) as action generates further information.

6.2 | Narrative evaluation

The next box concerns evaluative processes indicated by past research into developing conviction. They are the means through which ideas put forward in debate are judged as plausible and reliable, or not, in each case generating reasons and feelings in their favor, or against.

Conviction has been studied, as attitude certainty ("feeling certain," Wan et al., 2009). How particular narrative elements might be more, or less, influential in developing a subjective feeling of certainty is likely to be influenced by features identified in attitude certainty research. Four features supporting a feeling of attitude certainty (or conviction) have been identified repeatedly:

6.2.1 | Familiarity or pattern recognition effects

Narratives which include subjectively recognized or familiar patterns enhance conviction (e.g., Gigerenzer & Goldstein, 1996; Koriat & Levy-Sadot, 2001). Intuition as a means of decision-making rests on pattern recognition (Kahneman & Klein, 2009; Sinclair & Ashkanasy, 2005) which is emotionally mediated in interaction with memory (Chassy & Gobet, 2011).

6.2.2 | Congruency effects

Narratives perceived to be congruent with actors' own ways of thinking and ascribing causality have a better chance of being perceived to be accurate than those that seem "foreign" (Rucker et al., 2014). DiMaggio's (1997) analysis of the links between culture and cognition suggests that

the experienced accuracy and relevance of narrative components will influence and be influenced by social interaction. Narrative elements are deeply socially embedded (Granovetter, 1985).

6.2.3 | Legitimacy effects

Information suggesting that actions are desirable, appropriate, or proper in relation to locally relevant norms, values, and beliefs is usually treated as more reliable (Suchman, 1995; Tormala et al., 2009).

6.2.4 | Importance effects

Narratives based on information that is perceived as locally important, competent or authoritative are more likely to generate attitude certainty (e.g., Boninger et al., 1995).

6.3 | Trustworthiness effects

These concern research findings suggesting that information and explanation relevant to narratives or the choice of heuristic (etc.) can be weighted differently according to where it is believed to come from. There are credibility effects and consensus effects.

6.3.1 | Credibility effects

Information from a locally reputed and trusted source, including from one's own expertise, is felt more accurate (Malshe, 2010; Tormala & Petty, 2004).

6.3.2 | Consensus effects

Narratives or parts of narratives shared with a subject's social comparison group foster a subjective feeling of accuracy. Social consensus and social expectations (such as ideas about avoiding future blame) play a key role in creating confidence in personal beliefs (Visser & Mirabile, 2004).

6.4 | Presentational effects

These reflect a large body of social psychology research on fluency and related effects. Such work has focused on how information presentation influences attitude certainty and so judgement and debate in determining a preferred narrative. Such influences include processing fluency (Alter & Oppenheimer, 2009; Song & Schwarz, 2009); accessibility (Bizer et al., 2006; Petrocelli et al., 2007); apparent effortfulness of information collection and processing (Smith et al., 2008; Wan et al., 2010), and perceived completeness of information (Haugtvedt & Wegener, 1994;

Pennington & Hastie, 1992; Priester et al., 2007; Wood, 1982; Wood et al., 1995).

In short, the way narrative components are presented, in foresight work and strategy debate, in organizations, and by who, is likely to make a difference to felt reliability and truth. As we have argued, these elements produce not just thoughts but feelings.

6.5 | The role of ambivalence

As narratives are built and modified iteratively the balance between approach and avoidance emotions shifts. The preferred conviction narrative is one which produces sufficient dominance of approach emotions over avoidance; supporting action by telling a story which exchanges a situation of uncertainty about the imagined outcomes of different management strategies for a situation of felt conviction in the preferred policy or strategy.

We next consider the processes through which the ambivalence generated by uncertainty is managed, as conviction is developed. As we have discussed, ambivalence generates anxiety which may be resolved either through emotion-focused defense and coping mechanisms which downplay the conflict or through problem-focused approaches which seek to resolve it (Ashforth et al., 2014).

Important recent work has been done on the regulation of emotions in organizations, for example on the importance of emotion regulation in strategy processes and processes of social emotion regulation (Healey & Hodgkinson, 2017; Hodgkinson & Healey, 2011; Vuori & Huy, 2020). Such contributions have emphasized both the role of techniques for the downregulation of strategic anxiety, and of the upregulation of interest and enthusiasm to build openness to new prospects (e.g., Healey & Hodgkinson, 2017). However, less attention has been paid to, what we identify as a core challenge, the role of the conflicting emotions associated with the ambivalence generated by uncertainty.

In the following section, we address this important question of how the ambivalence, doubts and anxieties, generated by uncertainty, are managed in individuals and organizations.

7 | TWO PARADIGMATIC STATES AND THEIR PRACTICAL IMPLICATIONS

CNT alters the focus of thinking about decision-making away from the challenge of how to get it right, *ex ante*, toward the challenge of enquiring into how you become convinced in your chosen path forwards, as the Echelon and Nokia managements had to do; although you can not know it's going to work. We suggest this is not only a more useful approach for decision-makers than the prevailing ideology of optimization but also, a less dangerous one, which allows more constructive learning from "mistakes."

CNT postulates two paradigmatic states in which narratives gain conviction: Integrated (I^s) or Divided (D^s) states. The two terms were originally introduced to research how market actors manage ambivalent thoughts and specifically to account for the characteristics of conviction

formation and then disintegration during financial bubbles (Tuckett, 2011; Tuckett & Taffler, 2008). We extend this conceptualization from a primary focus on individuals' mindsets to include forms of organizing and organizational routines. I^s and D^s are two different modes of feeling, thinking, and organizing, reflecting different approaches to managing doubt and anxiety that we expect to find at work in the processes that create conviction in strategy narratives.

7.1 | Integrated state

I^s is the state of affairs envisaged in normative theories of science based on experimentation and/or inference; strategic actors are curious, a broad range of information and perspectives, both supporting and challenging plans and actions are considered; and it is recognized that there are uncertainties and contradictions within the preferred conviction narrative supporting a strategy or policy. Conviction is obtained via connected thoughts which are the outcome of curiosity and complex analysis and thinking rather than by some form of suppression of emotions, options, and arguments. Crucially, the ambivalent feelings that go with thoughts, such as simultaneous fear and excitement, are tolerated. Hence feedback and enquiry mechanisms (perhaps groups empowered to keep doubting) can be put in place organizationally and used to monitor assumptions and developments, whether they produce anxiety or not.

An integrated state requires the ability to tolerate the feeling of "not knowing," which has sometimes been given a more subtle formulation by using the poet Keats' idea of negative capability: "I mean Negative Capability, that is when man is capable of being in uncertainties, Mysteries, doubts, without any irritable reaching after fact & reason" (Keats & Milnes, 1848, p. 71). Or put another way, "precisely the ability to tolerate anxiety and fear, to stay in the place of uncertainty in order to allow for the emergence of new thoughts or perceptions" (Eisold, 2000, p. 65). For example, Fenton-O'Creevy et al. (2005) highlight the willingness among high performing investment bank traders, in comparison to lower performers, to tolerate doubts and mixed emotions in the face of uncertainty and stay curious about alternative perspectives.

Simpson et al. (2002) use the concept of negative capability when describing the challenges faced by a large British company, "Megacom," which was trying to negotiate a risky but potentially large and profitable new venture between themselves and companies in Russia, China, and South Korea. They describe how, over a long period, the CEO reported that he had to tolerate the feelings provoked by uncertainty to set aside his previous certainties (and persuade his board to). He had to drop many assumptions about people in the other teams and their motives and *modus operandi* and learn to listen and become curious about them and their arguments afresh. From this stance, he became able to broker agreements and to gain trust and authority. Allowing a state of "not knowing" or negative capability, despite huge pressure to decide and get things agreed, argue Simpson et al., creates the conditions for curiosity, knowledge co-construction, trust between partners, and sustained agreement.

A capacity for maintaining ambivalence may also be structured into organizational routines, structures, and other arrangements. For example, the New York Fed has established an "Applied Critical Thinking" unit, whose job, is to surface doubts about basic assumptions behind key policy decisions. A crucial feature is that they report directly to the bank president (Torres, 2019). In I^s , new information and perspectives are sought out and then lead to curiosity and discussion; and perhaps to updating strategy, for example, via organizational structures and routines such as in the New York Fed.

In I^s , doubt repeller elements of narrative typically concern active checks to resolve doubts. For, example, Maitland and Sammartino (2015) describe the concerns of an Australian mining firm about political hazards in a planned acquisition in an African state that had not long since ended a civil war. A key concern was whether they could operate without making corrupt payments. Lacking conclusive information or resources to develop a timely and comprehensive understanding of corruption risks, they adopted a key heuristic: whether other MNEs had been able to operate without making corrupt payments. Investigation of this question acted as a key doubt repeller.

Tuckett's notion of integrated state is close to what Ashforth et al. (2014), describe as an attitude of wisdom, "where actors balance confidence with doubt, ready to act as if they know and yet as if they do not know. Cast in the terminology of ambivalence, 'knowing' and 'doubting' are opposite orientations held simultaneously" (p. 1465). Although Tuckett, in line with earlier discussions about brain functioning, stresses that I^s is an emotional as well as cognitive state.

Similarly, Grossmann et al. (2019) focus on wise reasoning; defined by them as "epistemic humility, recognition of a world in flux/change, self-transcendence, recognition of diverse perspectives on an issue, search for integration of diverse perspectives" (p. 805). In a series of diary and experimental studies, they show these to be supported by more diverse and balanced emotions, as opposed to the dominance of a single emotional state.

7.2 | Divided state

D^s , on the other hand, is a simplistic rather than complex state in which potentially relevant ideas are disconnected by forms of cognitive and emotional, or organizational defenses. Emotions are polarized to either approach or avoidance, and data, ideas, sources, opinions, narratives, and the various features that go into a conviction narrative receive attention only if they evoke that side of the ambivalence. Accounts, data, opinions, theories, emotions, and thoughts that do not fit exist in a disconnected and ignored state and do not count. In this state, doubts are typically repelled through selective individual and organizational inattention.

For example, Homburg and Fürst (2007) have documented how defensive organizational routines may insulate managers from customer complaints. To give another example, during the dotcom boom companies raised large sums from investors with lengthy

prospectuses describing potential difficulties. These received scant attention. A narrative generating inflated expectations about dotcoms ("phantastic objects": D. Tuckett & Taffler, 2008) had developed, accompanied by a polarization to approach emotions. Research subsequently demonstrated that the addition of the suffix.com raised valuations during the boom, whereas its removal raised valuations after the bust (Cooper et al., 2001, 2005). Similarly in his discussion of the "social construction of ignorance" Rayner (2012) highlights how organizations often avoid uncomfortable knowledge through strategies of denial, dismissal, diversion, and displacement.

There is promising work suggesting that such states may be measurable. For example, Nyman et al. (2021) have shown how algorithmic text analysis of large data sets may be able to help central banks to identify the emergence of divided states threatening financial stability.

The crucial feature of D^s is that it is a state in which information is attended to in an unbalanced way; driven by polarized emotions, information favorable to the current belief trend is noticed, unfavorable information is unnoticed or discounted. This selective attention might be driven by feeling states. Unfavorable information in respect of current beliefs generates avoidance feelings and can be disavowed for significant lengths of time. Alternatively, social mechanisms, such as organizational structure, culture, routines, and processes, may act to reduce ambivalence and anxiety, influencing the willingness to enquire.

For example, it is common for organizations to manage the anxiety of key uncertainties associated with a planned strategy by committing to future review. Under D^s we would expect that such review may often function in a largely ceremonial fashion, failing to recover or represent the initial ambivalent thoughts and emotions and associated anxiety.

Another example would be the way that prevailing political processes and power relations within an organization often reduce ambivalence by silencing voices that challenge framings of an organization's context; thus resisting narratives of uncertainty that challenge powerful actors perspectives (Wilson et al., 2010).

We suggest that if a policy or strategy is supported by a narrative formed in D^s , then ideas and information that challenge the narrative will be ignored or rationalized away. Routines and defenses which avoid ambivalence and anxiety will prevent learning and adjustment. In D^s ambivalent feelings are subjectively intolerable to both individuals and groups captured by this type of functioning. Both individual (Pratt & Crosina, 2016) and group methods of defense against anxiety are well established. The latter leading to the term groupthink (Baron, 2005; Janis, 1982). Useful work has also been done on defensive routines in organizations (e.g., A. D. Brown & Starkey, 2000; Rayner, 2012).

The main point is that whether in individual, group, or organizational contexts, defensive procedures are used to isolate or rationalize anxiety-provoking information and perspectives and maintain current beliefs untouched (De Klerk, 2017).

The Governors of the Federal Reserve Bank argued ideologically over competing narratives to explain the unfolding events of

2007–2008, ignoring links between the macroeconomy and finance, present in their own documents (Fligstein et al., 2017), as well as other signals of financial strain; this forced the Governor to delay intervention before the crisis (Abolafia, 2020). Many Nokia executives failing to grapple effectively with the threat of Apple, most holders of Dotcom stocks, politicians and officials failing to notice the importance of protective clothing and logistics in responding to the COVID-19 pandemic and most buyers of complex sub-prime mortgage derivatives seem to have functioned in D^5 .

Recent research suggests that to turn Nokia around required what might be called emotion work before they were able to generate and act on a new narrative that saw them exiting the mobile phone market and focusing on alternative opportunities. For example, new ways of talking and listening to each other aimed at building trust and cooperation, were instituted; routines supporting consideration of a much wider range of potential futures were introduced (Vuori & Huy, 2018).

It remains to be seen whether the UK government, will be willing to recognize the nature of the divided state that led to the number 1 risk on the National Risk Register (a pandemic) being associated with contingency plans (e.g., to purchase PPE or vaccine manufacturing capacity as needed in real time) that any foresight exercise examining multiple scenarios would very rapidly have found wanting. Crisis and disease prevention are two areas of uncertainty about future threats and hazards where D^5 is a tempting solution to policy conflict.

Conviction or adjustment built in D^5 , which we would expect to be less well founded, would exhibit such tell-tale signs as: support from a limited range of information sources; absence of relevant detail; absence of evidence that alternative perspectives have been deeply considered; ritualistic use of modeling techniques to produce “a number”; absence of considering the kinds of “big surprise” (Thompson & Smith, 2019) that may not be encompassed by narratives or models; lack of organizational transparency, use of a narrow range of expertise, discounting or avoiding ways of getting relevant feedback and inattention to weak signals on how key variables vital to success are evolving.

We can notice whether the narratives in discourse, memos, emails, or other communications contain a balance of both approach and avoidance emotions, if there are changes in these emotions, and whether they are sustained and in what direction. We can also look at the extent to which building in relevant feedback to test core assumptions as events unfold is included in the decision⁶ and at the emotional content of the feedback data coming in as well as the search activity undertaken before decisions or any revisions to decisions.

8 | CONCLUSION

8.1 | Our contribution

Much foresight work has been preoccupied with the significant challenges of helping organizations and policymakers avoid what the novelist Chimamanda Ngozi Adichie has called “the danger of a single

story” (Adichie, 2009). Approaches to this problem include techniques for deconstructing taken for granted narratives, frames and assumptions about past present and future (Inayatullah & Milojevic, 2015), and the use of scenario techniques as a tool for “disciplined imagination” (Schoemaker, 1997). We suggest that CNT adds significant insights to this body of work, through its systematic account of the role of emotion in the processes by which narratives are formed, elaborated, and motivate action.

In this paper, we have started with the individual and organizational challenges of foresight; that is, adequately considering alternative futures and alternative outcomes for plans, strategies, and policies. We have suggested that, in the face of radical uncertainty, a central question concerns how strategy and policy makers develop the conviction to act while remaining open (or not) to information and perspectives which may overthrow that conviction.

In exploring this question, we have highlighted the important roles played by emotions, ambivalence (whether tolerated or suppressed), and embodied narrative reasoning. We go beyond extant work on emotion-regulation in organizations' decision processes (e.g., Hodgkinson & Healey, 2011; Vuori & Huy, 2020), to highlight the importance of the tolerance of ambivalence and constructive doubt. We propose CNT as a valuable framework for integrating and advancing these insights and develop it further as an account of an embodied and socially embedded narrative reasoning process through which organizations and actors within them develop the conviction to act, despite radical uncertainty.

So where does that leave us in making judgments about the adequacy of foresight and future oriented decision-making and action *ex ante*. We delineated two contrasting paradigmatic organizational and psychological states in which decisions may be made, and their consequences for the updating of narratives and decisions. We argued that in conditions of uncertainty where ambivalence must be present, that suppression of ambivalence and polarization to either avoidance or approach emotions and thoughts is an important indicator of a state in which doubts are repelled through defensive routines and selective inattention, and in which the provisionality of narrative representations is replaced by misplaced concreteness.

Foresight science seeks to innovate beyond the large parts of decision-making and modelling science which remain wedded to precise calculation based on fragile optimality assumptions that leave them trapped in model land, unable to escape the big “surprises” uncertainty will sooner or later create (Thompson & Smith, 2019). However, we have argued that, to achieve this most effectively, more attention should be paid to the role of ambivalent emotions in the processes of narrative thought involved in foresight work and in the processes through which foresight narratives generate action.

8.2 | Implications for foresight research

In any organization, managerial attention is a limited resource. As Schoemaker (2019, p. 2) notes, we “are all vulnerable to missing signals due to limited attention, competing priorities and often, a lack of

curiosity." As Klein et al. (2011) have observed, in the face of uncertainty, good anticipatory thinking may be less about making predictions than making expert gambles with attention.

Thus, important questions in futures and foresight research include: "what are the conditions in which foresight work gets insufficient attention?"; "what are the conditions in which perspectives and ideas generated by foresight processes such as scenario planning or horizon scanning generate curiosity and broad attention versus selective inattention as consequential decisions are made?"; and "what are the conditions in which leaders and their organizations become stuck in single stories about the future?". We suggest that CNT provides a useful framework for investigating these questions. In particular, CNT would predict lower attention to information and perspectives which threaten preferred frames and plans where organizational decision processes show divided state rather than integrated state characteristics.

This points to the need to investigate the processes and routines through which organizations and individual decision-makers manage excitement, hope, doubt, and anxiety. We suggest a key question to be "in what conditions do such processes and routines support the expression of the emotional ambivalence and doubts associated with uncertainty?". Many organizational practices, routines, systems, policies, and processes which are embedded and 'taken for granted' may serve to support conviction by removing or reducing ambivalence, rather than supporting the curiosity it evokes.

The approach developed in CNT to examining relative sentiment shifts in financial market bubbles and crashes (Nyman et al., 2021), can be translated to foresight research in organizations. Parsing key formal and informal documents for relevant emotion terms, over periods encompassing key decision episodes or capturing discourse in foresight workshops, may allow the identification of shifts in approach and avoidance emotions and episodes of emotion polarization. Similarly, qualitative case-based research can usefully incorporate insights into the importance of conviction narratives, the role of approach and avoidance emotions and the role played by narrative forms and organizational routines in the management of doubts and ambivalence as alternative futures and their implications are considered.

8.3 | Implications for foresight practice

From a CNT perspective, faced with radical uncertainty about the future or the outcomes of future-oriented plans, a crucial question to ask is "where is the ambivalence?". Our analysis suggests that its absence may be a strong signal that an organization is becoming trapped in a single story about the future and is at risk of selective inattention to signals that might undermine conviction in that story.

If the more important challenge for strategic decision-makers is not the availability of new information, but the emotions it provokes and the consequences for the attention it gets (Hodgkinson & Healey, 2011), then attention to weak signals which contradict prevailing narratives depends markedly on whether strategic and policy narratives are adopted in a mindset and organizational configuration which supports open curiosity and tolerance of ambivalence.

This is not just a question about individual mindsets but also a question about the organizational structures and routines that may either support constructive doubt in dominant narratives or contribute to the elimination of such doubts. A notable example in this regard is the way in which Nokia was unable to successfully envisage a future in which they exited the mobile phone business until they had made significant changes to the emotional dynamics of their senior team.

As Dator has noted, foresight work in organizations will have little impact unless the process of envisioning alternative futures becomes "institutionalized" within the organization (Dator, 2019a). Our discussion points to some important elements of institutionalizing effective foresight processes in organizations. Whether deliberations about the future and the future outcomes of plans are conducted in a divided or integrated state can have profound implications for the ability to adjust conviction in the face of new information or new perspectives. Vuori and Huy's (2020) study of emotion work in Nokia highlights the ways in which organization structures shape emotional dynamics, relationships, and identity attachment to elements of strategy. Crucially, as we have argued, the nature of organizational incentives, structures and routines may either support or hinder approaching the future in an integrated state.

Our analysis suggests that organizations aiming to benefit from effective foresight need incentives, structures, routines, and leaders that support constructive doubt and ambivalence, that support treating decisions as experiments, and which recognize the need to support the emotion work involved in tolerating ambivalence and not knowing, while still being willing to act.

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CONFLICT OF INTERESTS

The authors declare that there are no conflict of interests.

DATA AVAILABILITY STATEMENT

There is no data to be available only citations of public sources.

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ENDNOTES

- ¹The words of Stephen Elop, CEO Nokia (Financial Times, 2011).
- ²Savage (1954), in his founding work on Bayesian probability, made the distinction between "small worlds" where all relevant alternatives, their consequences and probabilities are known or calculable and "grand worlds" (more commonly termed large worlds in recent accounts) in which relevant information about the outcome space, consequences and probabilities is unknown or must be inferred from sparse data, or in which the future is unlikely to be predictable, even stochastically, from the past. We note in passing that Savage felt it would be "ridiculous" to apply the apparatus of probabilistic reasoning to grand world challenges.
- ³This is not entirely the same as traditional approaches to emotional valance (negative vs. positive emotions). For example, while anger is considered a negative emotion it is often associated with approach behaviors (Carver & Harmon-Jones, 2009).
- ⁴A reviewer questioned the extent to which ambivalence is different to Festinger's (1957) concept of cognitive dissonance. While both constructs consider the emotional discomfort of dissonant thoughts, in our account (and the literature we rely on) ambivalence involves both conflicting thoughts and emotions.
- ⁵We note, for the avoidance of doubt that we do not take narratives to consist solely of text and discourse, narrative elements may include calculations, models, images, graphical representations, and so on.
- ⁶A senior official for financial regulation at the Bank of England confided to one of the authors in 2019 that typically Bank officials spent a great deal of time and effort trying to frame the regulations. But once they were agreed they moved on to the new problem. Almost all financial regulations produce unintended consequences, partly due to gaming. These are largely ignored in seeking an optimum solution.

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